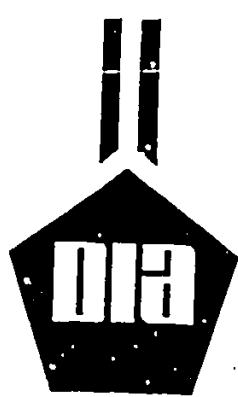


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DEFENSE
INTELLIGENCE
AGENCY

China: National
Command,
Control, and
Communications—
Beijing (U)

DECEMBER 1984

[REDACTED]

**China: National Command, Control,
and Communications—Beijing (U)**

DDB-2610-73-84

Information Cutoff Date: 15 September 1984

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This is a Department of Defense Intelligence Document
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PREFACE

(U) In the fullest sense, this publication is the product of many contributors with expert knowledge in interrelated disciplines. Detailed reports provided through the various US Defense Attaché reporting systems and other human source collectors have been particularly useful. The author also acknowledges with great appreciation the assistance provided under the auspices of the Interagency Working Group on Chinese Command, Control, and Communications.

(U) Each classified title and heading in this report has been properly marked; all those unmarked are unclassified.

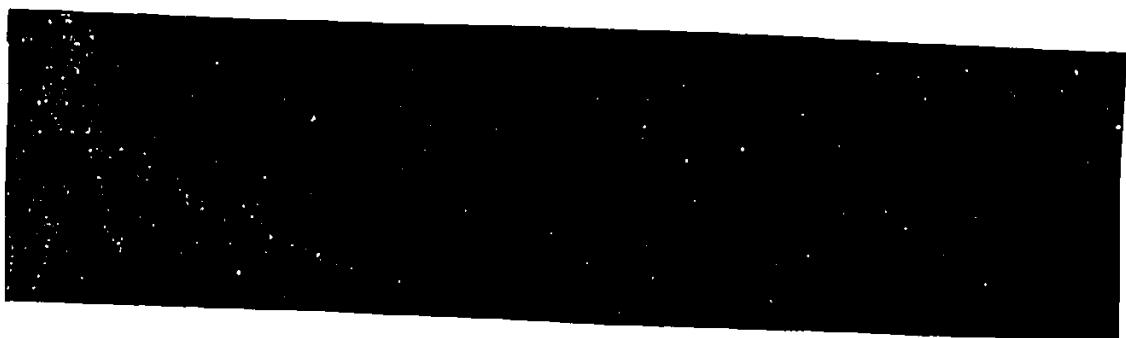
SUMMARY



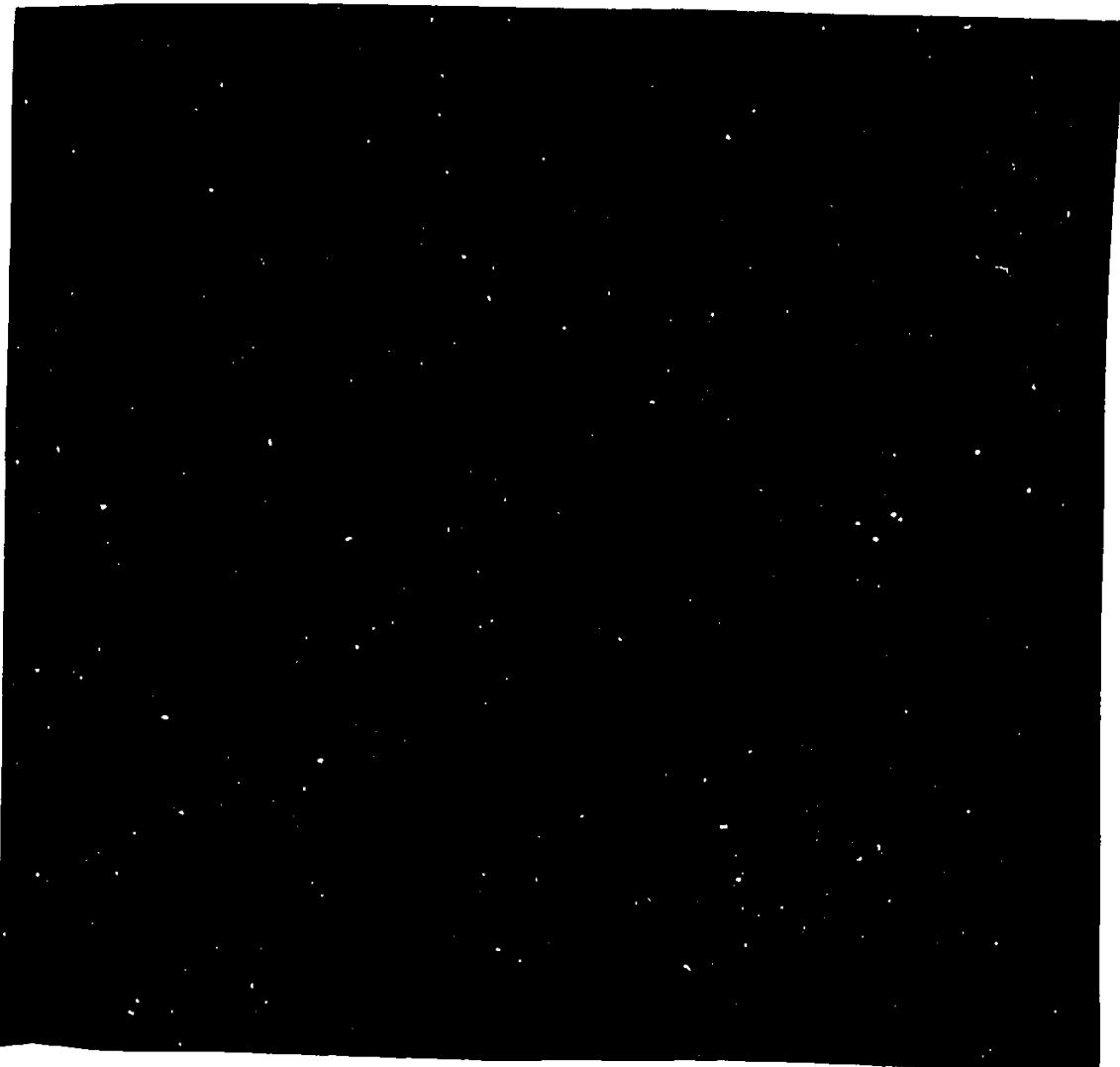
(U) For all practical purposes, the CPC governs China. The party's organization has been officially described as the PRC regime's superstructure. Throughout the national command and control structure, leadership emphasis invariably centers on members of the CPC. Three leadership echelons are in evidence. The first echelon is the leading core--veteran revolutionaries or elder generation members who provide advice and guidance on major policy issues. Second-echelon members are younger colleagues, mostly in the 50- to 60-year-old age range, who oversee day-to-day affairs. Third-echelon members are identified as young, educated professionals who represent the beginning of a regular reserve force for future top-echelon posts.



(U) Policies that are reviewed and approved at the highest level of the CPC are ratified by the National People's Congress of the PRC, the state legislative body, and the highest organ of state power. The National People's Congress and its Standing Committee ratify the party policies with legal form and authority. The most important of the government bodies charged with executing party policy is the State Council. Under the Constitution, the State Council also is charged with responsibility to direct and administer the building of national defense.



(U) The organizational structure is aligned to permit full party interface with institutions and processes in the government and military systems. Throughout the vastly complicated structure there are party organs or party representatives to decide, guide, and coordinate. From the standpoint of authority, strategic policymakers and their executive administrators outrank management components. The holders of ultimate authority are a small select party group who represent the final voice of command for both internal and foreign policy.



CHAPTER 1 - INTRODUCTION

A. Command, Control, and Communications Dimensions

(U) In its simplest form, command, control, and communications (C³) (see appendix E) functions are seen whenever there is a need to control the actions of a formation or body of people. As a bare minimum for a system, there must be a command element responsible for controlling the actions of the people and an action or control element to carry out the commands. If the system is to function coherently over a distance, there has to be some form of communications between the command and action elements. When the system is not autonomous, the command element is responsible to an authority. Actions will not be initiated by the command element unless they are approved by that authority or in accordance with its policy and directives. In effect, the C³ system requires some external stimulus before the control element springs into action. If control is to be maintained, the command element needs to know the result of the action initiated. Communications by electromagnetic means provide this capability.

(U) At the national level, the dimensions of C³ are exceedingly large. The overall system can be viewed conceptually as the foundation of the national security decision process. The quality of that foundation is determined by the national command authorities, who are empowered to set objectives and make the final policy decision, and on the skill of their subordinates, who develop the broad managerial strategy and oversee proper implementation of policy. The critical nervous system is formed by the supporting personnel, organizations, information, procedures, equipment, and communications necessary to insure precision in the various decision processes. Weakness in any part of the overall system conceivably can determine the ability of a country to survive in peacetime, in emergency, or in wartime.

(U) Operationally, there are many loops of command and control action elements in a complex national hierarchy. The action element at any one level may be the command element at the next level down the hierarchy. Completely coordinated operations throughout the entire system is essential. This essential requirement is fulfilled by the fixed strategic communications carriers of the national telecommunications system, which serves as the backbone of the hierarchical structure. Lack of communications precludes the ability to control; thus, adequate and secure communications is a command responsibility.

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(U) Telecommunications considerations obviously have to precede preparations for new, expanded, or refined command-control functions. The fixed strategic long-haul communications carriers are required for secure linkage from the national center to all intermediate levels down to the echelon that is equivalent to corps (army) level. They must be capable of supporting sustained changes over time. The various transmission media--new and old--are vulnerable to paralysis in peace as well as in war; therefore, additional provisions for rerouting and interchange in the event of disruption or failure are essential. Traffic overload is a critical communications planning factor. The optimum limits to theoretical total carrying capacity on backbone and tributary trunks require provisions for alternate transmission media; bypass arteries are preferred.

(U) The strategic military C³ structures are subsystems of the major national foundation. Thus, final decisions on force compositions and the systems to be used are made at the highest level of national authority. The main purpose of the military systems is to improve the speed and efficiency of the military chain of command. An effective and coordinated C³ capability can compensate for perceived weaknesses of national forces; equipped with conventional armaments. Viewed in terms of the extreme situation of a nuclear war, a first strike strategy emphasises C³ capable of handling large amounts of information. Second strike or a retaliatory strike would require C³ designed to survive the direct and indirect effects of a large nuclear attack. Survivability of C³ becomes more important than speed of reaction.

B. The China Perspective

(U) The late Mao Zedong, on announcing the founding of the People's Republic of China in October 1949, said, "...the Chinese people, numbering a quarter of the world's population, have stood up." This clear reference to the restoration of national pride and purpose after years punctuated by crisis, reform, rebellion, warlordism, Japanese aggression, and civil war also presaged two themes that still dominate life in China--modernization and self-reliance.

(U) The evolution of the Chinese Communist Party organization essentially represents the evolution of the PRC organizational system. Milestones associated with the growth of the party are included in table 1. The communists who ultimately gained control of China comprised an ungainly amalgam of politicians, administrators, and military leaders. Included were pioneers from the early revolutionary group, members who joined the party during the 1939-45 anti-Japanese war, and members and followers who participated in the 1945-49 civil war. The leaders in this group possessed a long history of violence. Conversion to peacetime operations was not without opposition and periods of extreme coercion.

(U) Changes in China since 1949 have been recurrent and enormously complex. The largely agrarian society with traditions that date back to antiquity, minority peoples who have been traditionally hostile to Han Chinese rule, and the urban society have been shaken in rapid succession by major upheavals and dramatic reversals. The process of welding the diverse peoples into a nation state, promulgating new ideology and a new set of values, and instituting a new system of social relationship has been carried out

Table 1

Evolution of the Communist Party of China (U)

<u>Party Congress</u>	<u>Date</u>	<u>Number of Delegates/ Alternate</u>	<u>Total Party Membership</u>
1	Jul 1921	12	50
2	Jul 1922	12	195
3	Jul 1923	30 (approx)	420
4	Jan 1925	20	994
5	Apr to May 1927	80	57,900
6	Jun to Jul 1928 (in Moscow)	84/34	40,000
7	Apr to Jun 1945	547/208	121,000
8	Sep 1956	1,026/107	10,730,000
9	Apr 1969	1,512	22,000,000
10	Aug 1973	1,249	28,000,000
11	Aug 1977	1,510	35,000,000 (est)
12	Sep 1982	1,549/145	39,000,000

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Table 2

PRC - Transitional Stages (U)

<u>Objective</u>	<u>Official Stages</u>	<u>Timeframe (approx)</u>
<u>Phase I</u>		
Establish	People's Republic of China	1949
Transform	Socialist Transformation (Nationalization)	1950-53
Complete	New Democracy to Socialism	1954-74
<u>Phase II</u>		
Establish	Socialist System	1975-78
Develop	Socialism: Economic, Political, Cultural Aspects	1979-82
Make	Culturally Advanced and Highly Democratic Socialist Country	1983-?
	Achieve, Step by Step, Modernization: Industry Agriculture National Defense Science and Technology	

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methodically through stages of transition. The 1982 party constitution identified the various transitional stages. Overall stages and the legal basis for change are shown in table 2.

(U) Conversion to peacetime operations and the building of an institutionalized system of governance has resulted in intermittent periods of notable disruption within the leadership. Introduction of a militant approach to institutionalization ultimately resulted in totalitarianism. Ideologically founded transition theories resulted in periods of trial and error, experimentation, and improvisation while seeking the correct blend of party and state government to suit the needs of China. Incompatible goals or ideals have resulted in adaption to obstacles by postponement rather than abandonment. Thus, the national political pendulum has shifted from left to right and back again; authorities have not been hesitant to build, tear down, and rebuild the machinery of state government. Despite an apparent inconstancy, much has been achieved by China's revolutionary leaders in 35 years.

(U) On 1 January 1983, China started the first year under its new constitutional form of government. Officially, the Beijing holders of ultimate authority have set the Communist state of over 1 billion people on their next long-term course of transition. The PRC has been constitutionally identified as a Socialist state under the people's democratic dictatorship led by the working class and based on the alliance of workers and peasants. The principle of democratic centralism has been reaffirmed. Under the leadership of the Communist Party of China (CPC) and the guidance of Marxism-Leninism and Mao Zedong Thought, the citizens of China are to achieve--step-by-step--modernization in industry, agriculture, national defense, and science and technology. Focusing on programs for the remainder of the 20th century, broad lines of development are intended to prepare a base that will bring China into the community of advanced industrial nations by the turn of the next century. Also included in the long-term goals are the tasks of building a modern defense support system by transforming China's armed forces into a more modern and balanced source of military power. The underlying themes in present-day China are stability and sustained growth in a peaceful environment.

C. Political and Administrative Divisions

(U) In a little over three decades there have been wide-ranging shifts in China's political and administrative divisions. Most changes were implemented to simplify administration, tighten central political control, permit greater regional economic integration, or to accommodate military needs.

(U) Political and administrative divisions include 21 provinces, 5 autonomous regions comprising the minority nationalities, and 3 municipalities--Beijing, Shanghai, and Tianjin; all are coequal, identified as provincial units, and directly under central control (figure 1). Most provincial units and their subordinate levels are in the midst of reorganization in preparation for full conversion to the new constitutional form of government by 1985.

(U) Based on provisions in the 1982 PRC Constitution, ongoing changes will result in the following:

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Figure 1. (U) Administrative Divisions

- Provinces - subordinate to the province are counties and cities; counties are divided into townships and towns.
- Autonomous Regions - subordinate divisions are autonomous prefectures, autonomous counties, nationality townships, towns, and cities.
- Municipalities - the municipalities under central control, and other large cities (metropolitan areas) are divided into districts and counties.

In the ongoing reforms, the prefectures that had been established in the provinces only for economic administrative purposes are to be merged with cities. Nearly all of the communes, brigades, and production teams have already been replaced with districts, townships, and villages. Regional alignments also are scheduled to be abolished.

(U) In addition to the standard countrywide divisions and subdivisions, there are special economic zones in Guangdong and Fujian Provinces that are intended to serve as models for future China. There are provisions to create additional special zones as required.

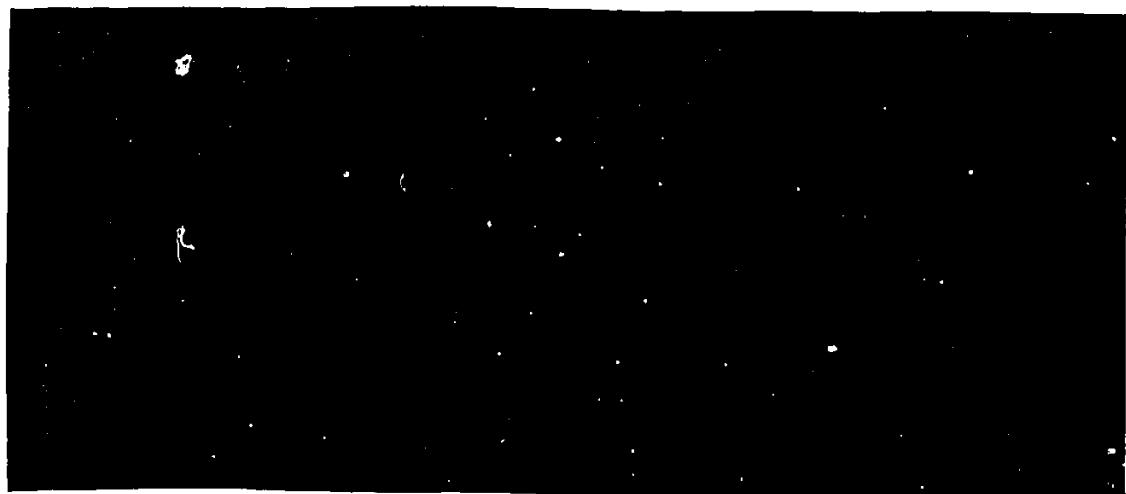
D. National Security and Armed Forces





(U) The broad missions of the armed forces are addressed in the new 1982 PRC Constitution as follows:

The armed forces of the People's Republic of China belong to the people. Their tasks are to strengthen national defense, resist aggression, defend the motherland, safeguard the people's peaceful labour, participate in national reconstruction, and work hard to serve the people. (Article 29)



(U) For military administrative purposes China has been divided into 11 military regions equivalent to territorial area commands. Within military regions there are air force district commands. There are also three naval fleet areas--north, east, and south--whose boundaries intersect the coast at points coincident with the military region boundaries (figure 3). The territorial area commands are divided into one or more military districts that parallel the main political and administrative divisions; districts are charged with primary responsibility for "People's Defense," "People's Air Defense" (or civil defense in American terms), military conscription, war mobilization, and support for the main land, sea, and air forces deployed in the respective areas.

E. The Beijing C³ Scene

* (U) Eight hours ahead of Greenwich Mean Time (GMT).

CHAPTER 2 - NATIONAL COMMAND AND CONTROL

A. Introduction

1. Frame of Reference

(U) National command and control can be viewed conceptually as the central suprasystem that determines the powers and duties of government; it represents the regulatory forces for stability or change. Included within the overall framework are: the formal seat of national command authority; written instruments embodying the principles and laws; legislative, executive, and judiciary components; the collective top-management bodies; and the formally structured senior-level civilian and military institutions common to most governing processes. Through the formal regulatory procedures within the central suprasystem, ultimate decisions are made on national priorities and the means and methods by which the assets of a country are put to work.

(U) The basis for understanding national command and control institutions and processes of a country largely stems from knowledge of how the country is governed, the mode in which the state is organized, and the manner in which authorized power is distributed. Beijing's national command and control structure is characterized by indigenous techniques and continual change.

(U) China in the recent past was officially classified as a totalitarian state. In 1982, the foundation for a new contemporary form of government was legally established and preparations for full conversion to the new government system are still underway. The new PRC system of governance appears to be a compromise form that falls between the democratic and totalitarian models. China's national command and control underpinnings, however, continue to reflect extrapolations of earlier concepts, but tempered by moderation and modified to accommodate new technologies.

2. The Systems Approach

3. Beijing: A Systems Overview



(U) For all practical purposes, the CPC governs China. The party's organization has been officially described as the PRC regime's superstructure. Although often described as a pyramidal-shaped organizational system that parallels the state and military organization, the party's status has been explained as follows:

...as regards the relationship between various organizations at the same level, of the seven sectors--industry, agriculture, commerce, culture and education, the Army, the government and the Party--it is the Party that exercises overall leadership; the Party is not parallel to the others and still less is it under the leadership of any other. (Tenth Party Congress, 1973.)

An updated version of the above statement in the 1980s has reaffirmed the paramount position of the party. The present system, however, stresses collective leadership and forbids any form of personality cult.

(U) With Marxism-Leninism and Mao Zedong Thought as its guide to action, the party functions on the basis of democratic centralism. Ideas may flow freely from the lowest party organs to the central committee and its political bureau (democracy), but once a decision has been reached at that level, orders requiring unquestioning obedience descend to the grassroots levels (centralism).

(U) In both theory and practice, broad lines of responsibility and the organization form to be taken by government and the military are within the exclusive legal domain of the Beijing-based CPC central organization system (figure 4). Within this system, a compatible mix of political, government, and military officials serve as top management representatives. The new contemporary PRC Government system was developed through a top-down approach to organizational structuring. One objective was to restore order. The bottom-up approach, focusing on more efficient work processes, is still underway. In the military organization structure, the framework for a new national-level military command and management system has been formed; other planned changes of an undefined nature have been suggested in the Beijing press releases.

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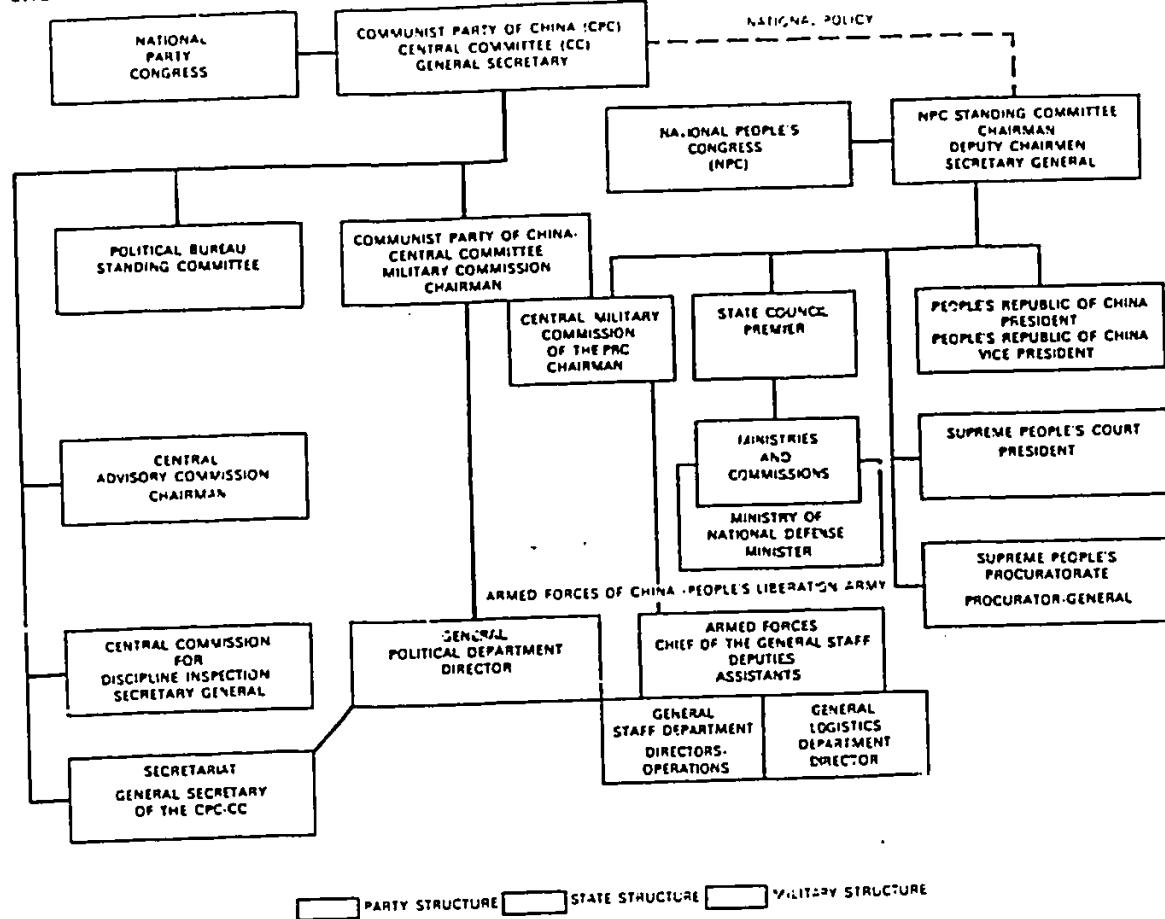


Figure 4. (U) National Party and State Organizations

(U) The intermediate-management process has been identified as an area in transition. There are both firm and experimental organization structure programs underway in many parallel fields, to include: more definitive lines between party, military, and central government responsibilities; elimination of multiple positions for individuals; abolishment of duplicate offices and functions; and introduction of more advanced technology. Intermingled with the evolution process of the diverse management-related activities are concerted efforts to reinforce stability in the total national security structure. Overall efforts are moving toward a institutionalized process that will be supportive over time; orderly succession is another basic goal.

(U) Figure 5 shows Beijing's broad organization strategy. The organization structure permits full party interface with the government and military systems. Throughout this complicated structure there are party organs or party representatives to decide, guide, and coordinate. From the standpoint

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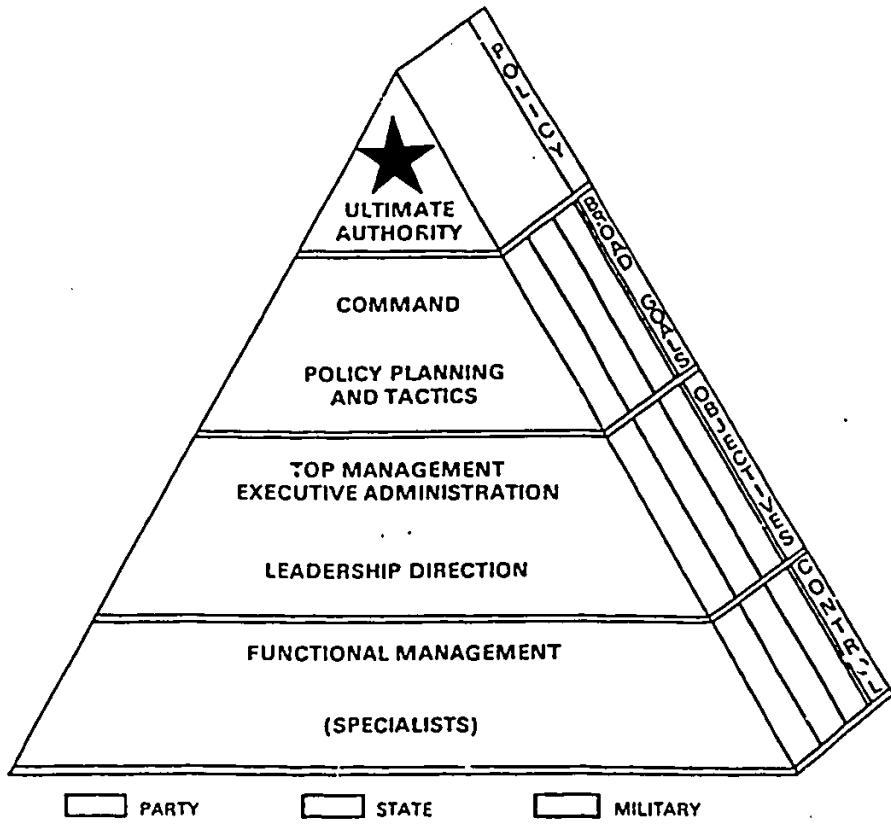


Figure 5. (U) Organizational Strategy — C*

of authority, strategic policymakers and their executive administrators outrank management components. The holders of ultimate authority are a small, select party group who represent the final voice of command for both domestic and foreign policy. In turn, their power base representatives for policy formulation and implementation are a select group from the key military and nonmilitary national security sectors. The administrators who set broad goals hold hierarchical precedence over other top executives in the political, military, and civil government structures. The ranking first-echelon executives, deputies, and assistants provide broad guidance for the operations management base. The final level is where the bottom-up approach reflects firm and experimental introduction of decisionmaking responsibility that will ultimately improve overall operations. This aspect of organizational structuring is still in the testing stage. Although the total systems approach is still in the midst of change, the fundamental concepts for structuring have been established. Several alternative forms of organization have surfaced, but primary structuring closely resembles the basic line and staff method.

(U) Throughout the national command and control structure, leadership emphasis invariably centers on members of the CPC. Three leadership echelons are in evidence. The first echelon is the leading core—veteran

revolutionaries or elder generation members who provide advice and guidance on major policy issues. Second-echelon members are younger colleagues, mostly in the 50- to 60-year-old age range, who oversee day-to-day affairs. Third-echelon members are identified as younger and better educated professionals with contemporary expertise; they represent the beginning of a regular reserve force for future top-echelon posts.

(U) Over the years, policy formulation, implementation, and supervision have been closely coordinated through the practice of assigning senior officials concurrently to posts in each of these roles. Concurrent assignments, especially in party and state organizations, are officially decried but they continue, especially at high levels. The practice tends to be masked by assigning a ranking official to the executive post of his primary function and as a deputy head of the organizational components of his secondary responsibility. At the highest levels, key officials are in a position to participate in the shaping of policies, in directing the transmission of policy orders and policy implementation to operating components, and in directly influencing and supervising proper policy implementation.

(U) A fundamental national command and control characteristic is that processes are complex and continuous. The pace and magnitude of changes are consistently influenced by strategic decisions pertaining to the internal and external environment, the courses of action to be taken, and the degree of planned operational sophistication. Restoring order in the party while making room for more advanced technology and improving national defense is a recurring theme for Beijing. But shifts in policy are a reality that cannot be overlooked. The organizations described in the following sections may quickly become outdated. That fact must be recognized but should not be a major limitation in understanding Beijing's basic national command and control systems concepts.

B. The Strategic Decision System

1. Overview



(U) Figure 6 shows the central organization system of the CPC. At the apex are the National Congress and the Central Committee elected by it. But unless specially convened by the Central Committee, the National Congress is required to convene only once every 5 years. The Central Committee is required to meet in plenary session at least once a year, and such sessions are convened by its Political Bureau. When the Central Committee is not in session, the Political Bureau and its Standing Committee exercise the functions and powers. Under the direction of the Political Bureau and its Standing Committee, the Secretariat attends to the day-to-day work of the Central Committee. The general secretary is responsible for convening meetings and presides over the work of the Secretariat.



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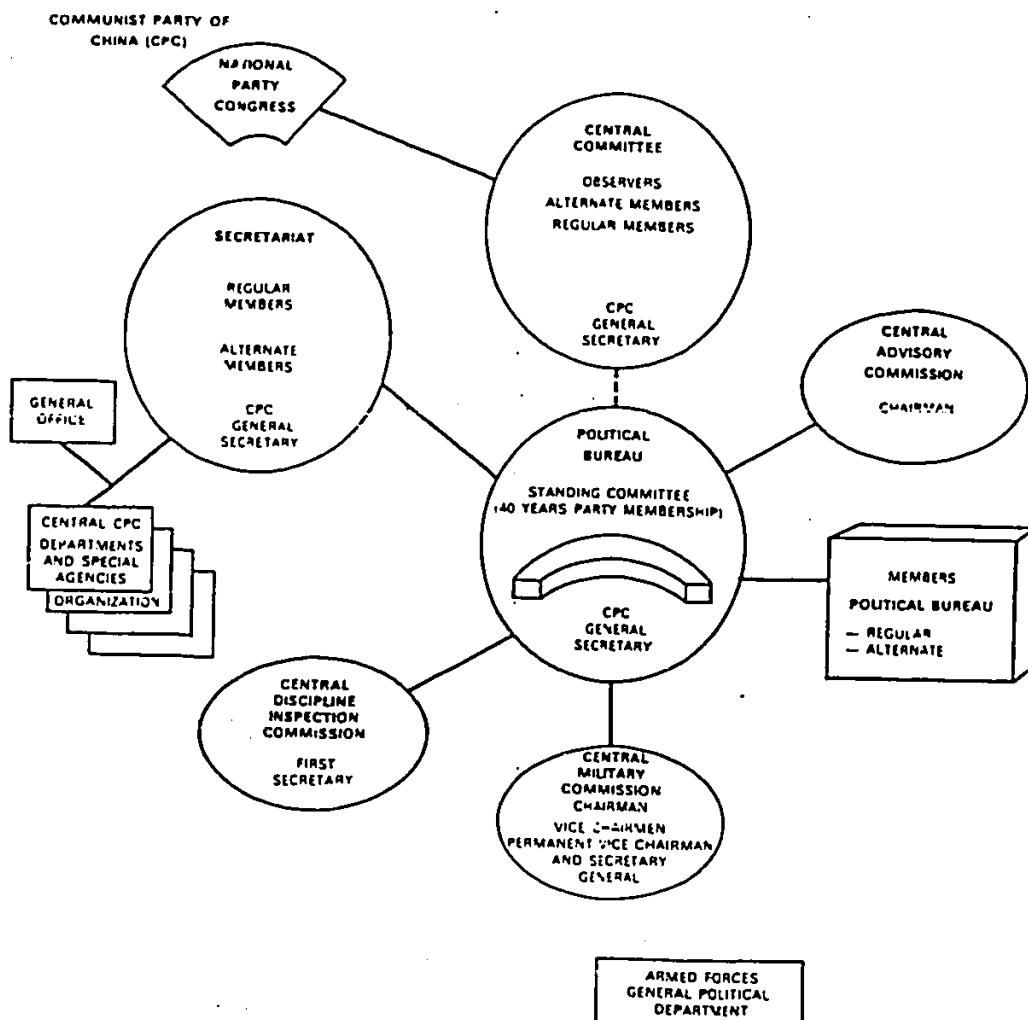


Figure 6. (U) Party Central Organization System

(U) The National Congress, with 1,545 delegates and 145 alternate delegates, convened in September 1982; it was the 12th in the series beginning with the founding Congress in 1921. Among the various activities, the Congress adopted a new CPC Constitution, elected the Twelfth Central Committee (348 members and alternate members), the Central Advisory Commission (172 members), and the Central Commission for Discipline Inspection (132 members). The Central Committee is composed of representatives from the various economic, cultural and educational, professional and technical fields as well as the leading party, government, and military officials. Decisions made at the central party level are transmitted to the government and military by party members who hold official positions and to the people by other members who work actively to control mass organization.

[REDACTED]

(U) The Central Committee elects the Political Bureau and its Standing Committee, the Secretariat, and the General Secretary of the Central Committee, and decides on members of the Military Commission. The chairmen of the Military Commission and the Central Advisory Commission, and the First Secretary of the Central Commission for Discipline Inspection must be members of the Political Bureau Standing Committee.

2. National Political Authority

(U) The Political Bureau and its Standing Committee represent the ruling summit of the PRC. Collectively, the Standing Committee members represent the source of ultimate national command authority in China. Members of the Political Bureau constitute the most important policymaking body. Officially described as China's policy and tactics body, the members exercise collective authority over national policy formulation and the development of broad strategy for achieving national security objectives.

3. Military Political Authority

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4. State Decisionmaking Organs

(U) The National People's Congress of the PRC is the highest organ of state power (figure 7) and is elected for a term of 5 years. It is legally required to meet in session once a year. Among the various functions and powers vested in the National People's Congress are the following:

- To amend the Constitution.
- To elect the President and the Vice President of the PRC.
- To alter or annul inappropriate decisions of the Standing Committee of the National People's Congress.
- To decide on questions of war and peace.

(U) The Standing Committee of the National People's Congress is the permanent body constitutionally designated to exercise the legislative power of the state. It is nominally empowered to decide on the ratification and abrogation of treaties and important agreements concluded with foreign states; to decide, when the National People's Congress is not in session, on the proclamation of a state of war in the event of an armed attack on the country

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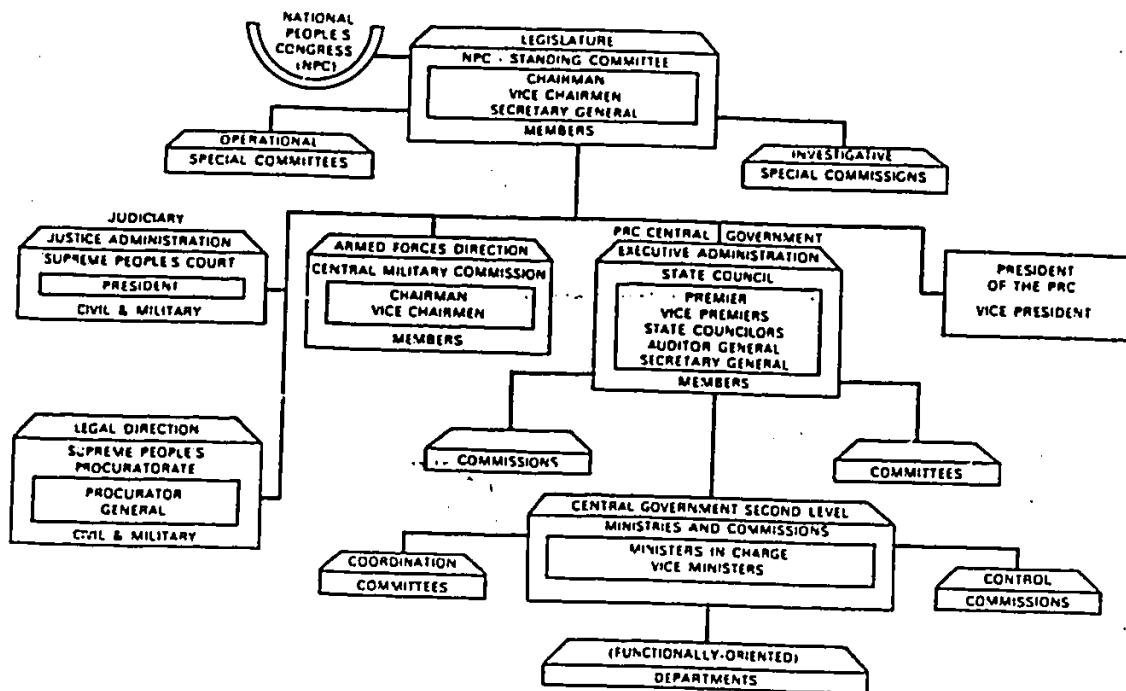


Figure 7. (U) State Central Organization System

or in fulfillment of international treaty obligations concerning common defense against aggression; to decide on general or partial mobilization; and to decide on the enforcement of martial law. Under the Standing Committee are formally constituted committees that examine, discuss, and draw up relevant bills and draft resolutions. There are also provisions to appoint committees of inquiry as required to conduct investigations. By law, the civilian and military members of the National People's Congress Standing Committee are not permitted to hold posts in any of the administrative or judicial organs of the state.

C. The Defense Policy Implementation System

1. The CPC Secretariat

(U) The Secretariat of the Central Committee is the party's central executive branch. It serves as the top-level management node in the formal policy implementation process. The Secretariat is headed by the General Secretary of the Central Committee; currently it is composed of eight full members and two alternates, who regularly meet twice a week in formal sessions. Each member is an experienced administrator who is also a specialist in one or more fields ranging from scientific and ideological to economic and military.

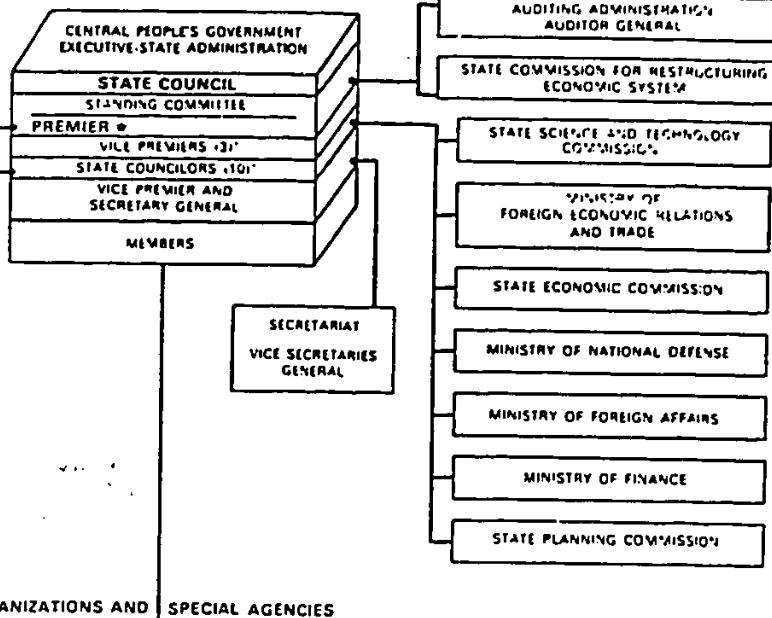
2. The State Council

(U) The State Council is constitutionally identified as the Central People's Government of the PRC; it is further designated as the executive body of the highest organ of state power and the highest organ of state administration. Under the Constitution, the State Council is charged with responsibility to direct and administer the building of national defense. Organization of the State Council is prescribed by law. It is composed of a premier, vice premiers, state councilors, the ministers in charge of ministries and commissions, the auditor general, and secretary general. The term of office for members of the State Council is the same as for the NPC; legally, top-level officials are to serve no more than two consecutive terms. Under the State Council's Organic Law (1982), major work issues must be discussed or decided by plenary or executive meetings convened and presided over by the Premier. The executive meetings are attended by vice premiers, state councilors, and the secretary general; all State Council members attend the plenary sessions.

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- NUMBER OF MEMBERS RESULTING FROM SIXTH NATIONAL PEOPLE'S CONGRESS SELECTION PROCESS (1983)
- MEMBER OF THE PARTY CENTRAL COMMITTEE POLITICAL BUREAU STANDING COMMITTEE

PARTY COMMITTEE FOR STATE ORGANS
SECRETARY
DEPUTY SECRETARIES



MINISTERIAL LEVEL ORGANIZATIONS AND SPECIAL AGENCIES

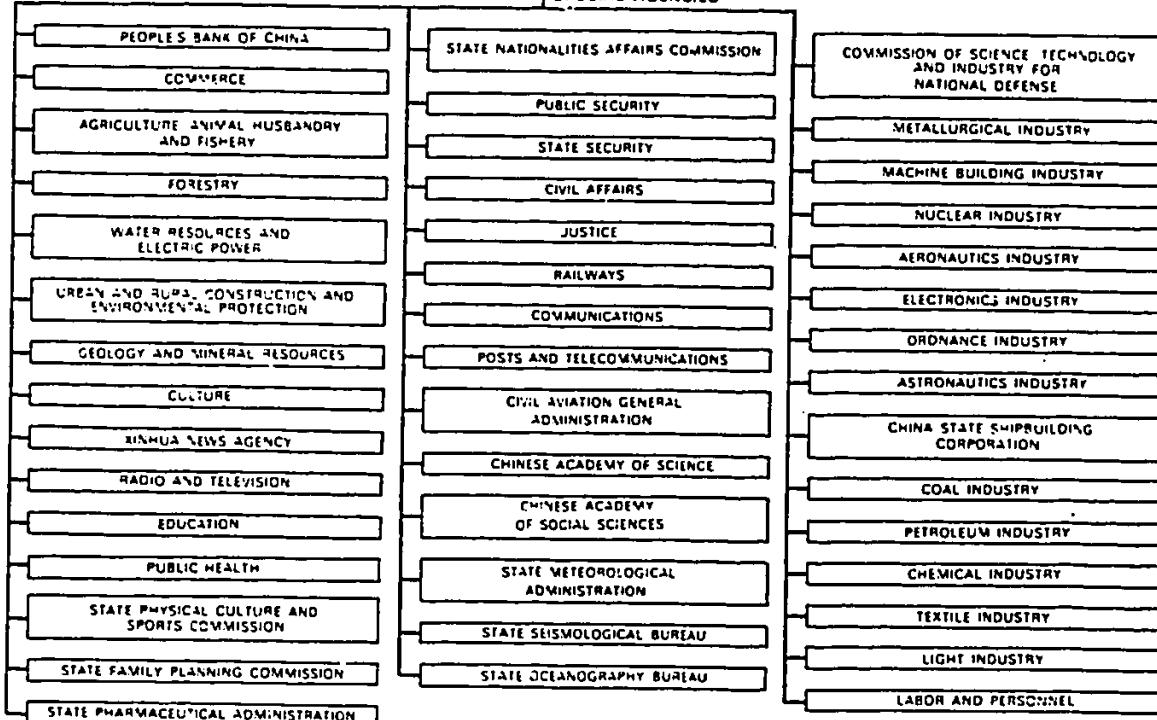


Figure 8. (U) Organization of the State Structure

3. The NDSTIC

(U) In August 1982, the Standing Committee of the PRC National People's Congress adopted the resolution on merging the office under the State Council in charge of the National Defense Industry (NDIO), the Science and Technology Commission for National Defense of the PLA (NDSTC), and the Office of the Science, Technology, and Armament Commission of the Military Commission of the Central Committee of the CPC into a Commission for National Defense of the Science, Technology, and Industry (NDSTIC). The minister in charge of the commission was formerly vice minister of the NDSTC. The NDSTIC has been described as a commanding organ responsible for the development, experimentation, and production of modernized equipment for the armed forces. By March 1983, a Special Defense Coordinating Committee (SDCC) was formed to speed up the modernization of the armed forces. The SDCC is in charge of both military research and armament industry. Both the NDSTIC and the SDCC function under the dual control of the State Council and the Military Commission of the Central Committee. Figure 9 shows the overall defense support profile.

D. Armed Forces Command and Management

1. Overview

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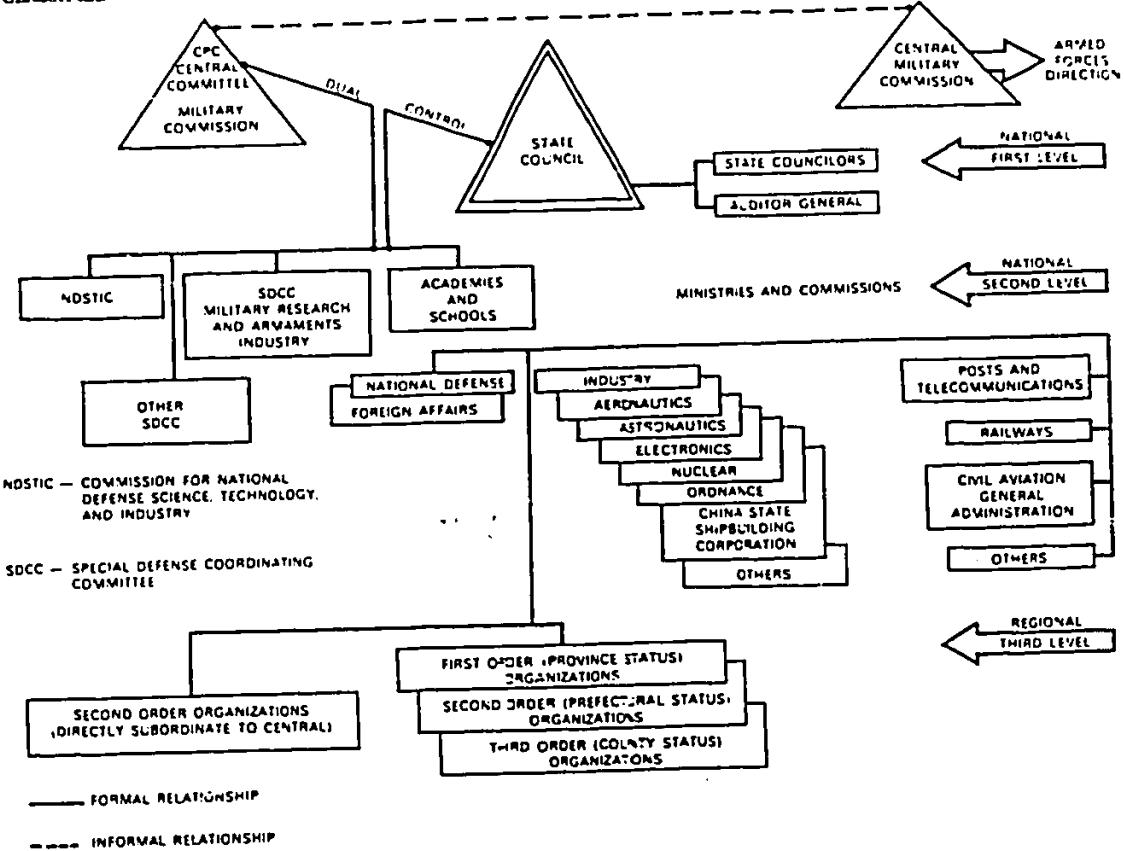


Figure 9. (U) National Defense Support Organization Profile

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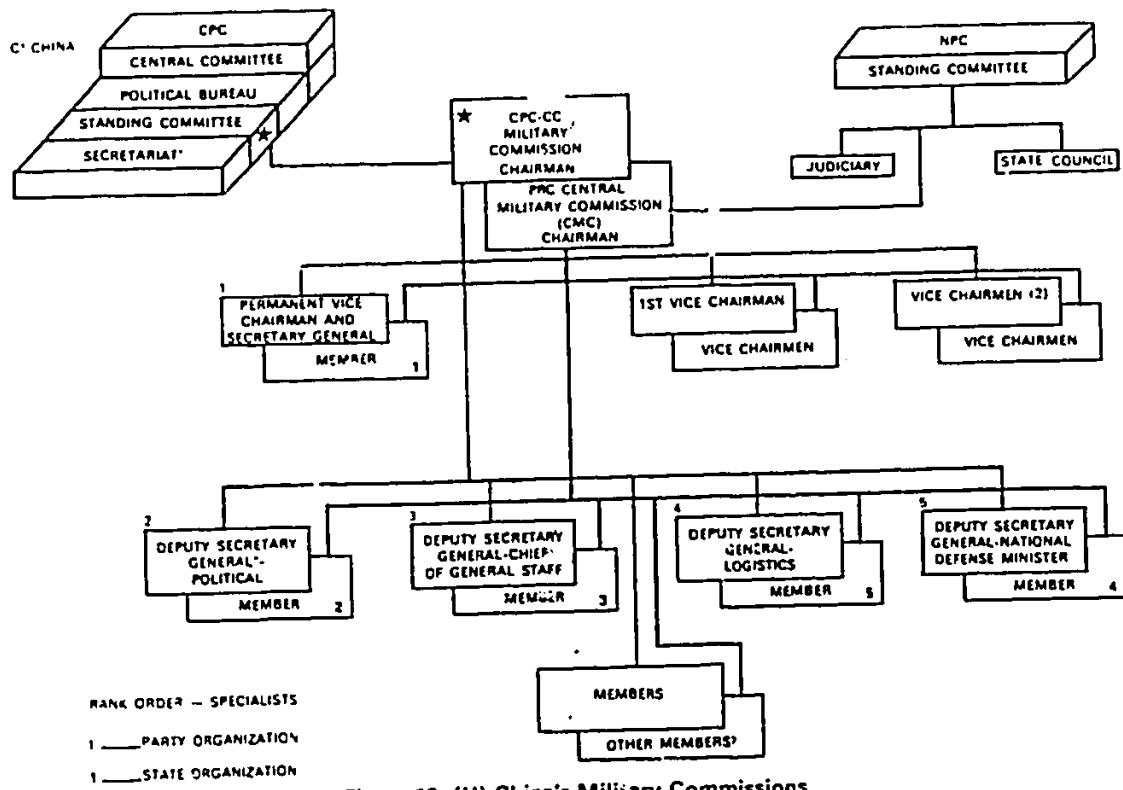


Figure 12. (U) China's Military Commissions

3. Military Command and Management System

CHAPTER 3 - TELECOMMUNICATIONS

A. Perspective

(U) Beijing has officially acknowledged the central role of telecommunications* in fostering economic growth and has included telecommunications expansion on a growing list of high-priority development plans. China possesses a reasonable degree of technical expertise and is emphasizing acquisition of state-of-the-art communications technology. Because the advanced technology requires a high level of expertise in operation and maintenance, practical application largely depends upon China's ability to develop highly trained personnel.



* (U) Telecommunications is a general term for any transmission, emission, or reception of signs, signals, writing, images and sounds, or intelligence of any nature by wire, radio, optical, or other electromagnetic systems.

(U) Taken as a whole, communications support has relationships to the total national interest. China's treasury must finance and maintain its general purpose communications system and the numerous subsystems that support unique civil and military functional requirements. Prohibitive cost, limited expertise in modern systems engineering, and the lack of qualified technical personnel preclude the ability to create and maintain a fully modern countrywide system in the near term.

(U) In both theory and practice, planning for communications expansion and construction must precede other expansion programs. Communications must keep at least one step ahead of anticipated growth in all other sectors, to include significant changes in military doctrine. From the echelons equivalent to corps and all levels above, the fixed strategic communications structure should be capable of taking up the immediate surge of defense needs and thereafter to provide auxiliary networks, factories to produce equipment, and laboratories to create new devices and techniques--all required in emergencies. Such planning is a complicated and time-consuming process that has been known to entail some 5 to 15 years of preparations.

(U) In much of China, difficult terrain necessitates much time and effort for engineering and construction of landlines and terrestrial radio-relay link systems. Maintenance is also extremely difficult in areas where landlines traverse deserts, mountains, and high plateaus. Line outages are frequent in areas with heavy rainfall, and telecom equipment is subject to malfunction because of dust storms and other natural hazards. Tropicalized equipment is required in some parts of the country due to extremes in climate and the high humidity. Reasonably adequate training facilities and personnel

support the telecom system. Engineers and technicians are trained at basic vocational, technical vocational, and academic schools.

(U) Domestic industries are capable of producing a significant amount of China's communications equipment requirements and the quality ranges from fair to good. Items that cannot be produced domestically are imported, principally from Western countries.

(U) China has a viable research and development program in the field of electronic communications, but state-of-the-art programs lag behind those of technologically advanced countries. Research and development in the field of optic fiber communications was introduced in the early 1970s and hold promise, according to the Chinese, for new advances in message transmission. Pilot optical fiber communications systems have been installed in Shanghai, Beijing, Wuhan, and other major cities, including the transmission of color television through long-wave optical fiber in Hebei Province and, for some time, telephone transmission in Shanghai.

(U) China was admitted to the International Telecommunications Union (ITU) and the Asian Broadcast Union (ABU) following the expulsion of Taiwan in 1972. The ITU, an agency of the United Nations, is the major international organization involved in cooperative planning for worldwide radio call signs and radio-frequency allocations, and for establishing technical telecom construction and operation standards. The ABU is a union of national broadcasting organizations in the Asia-Pacific region. In August 1977, China joined the International Telecommunications Satellite Organization (INTELSAT). China was an active member of the Moscow-sponsored International Radio and Television Organization (OIRT) until 1964, when Beijing stopped paying OIRT dues and took over the Shanghai-based technical measuring center of the OIRT.

2. Administration and Control



(U) In addition to the MPT, most of the principal organizations involved in telecom management or operations hold ministerial-level status under the State Council. The identified ministries, bureaus, and agencies include the following:

Civil Aviation	News Agencies (Xinhua, <u>People's Daily</u>)
Coal Industry	Petroleum Industry
Communications	Public Security
Electronics Industry	Radio and Television
Foreign Affairs	Railways
Machine-Building Industry	Water Resources and Electric Power
Meteorological	National Defense

3. The National Infrastructure



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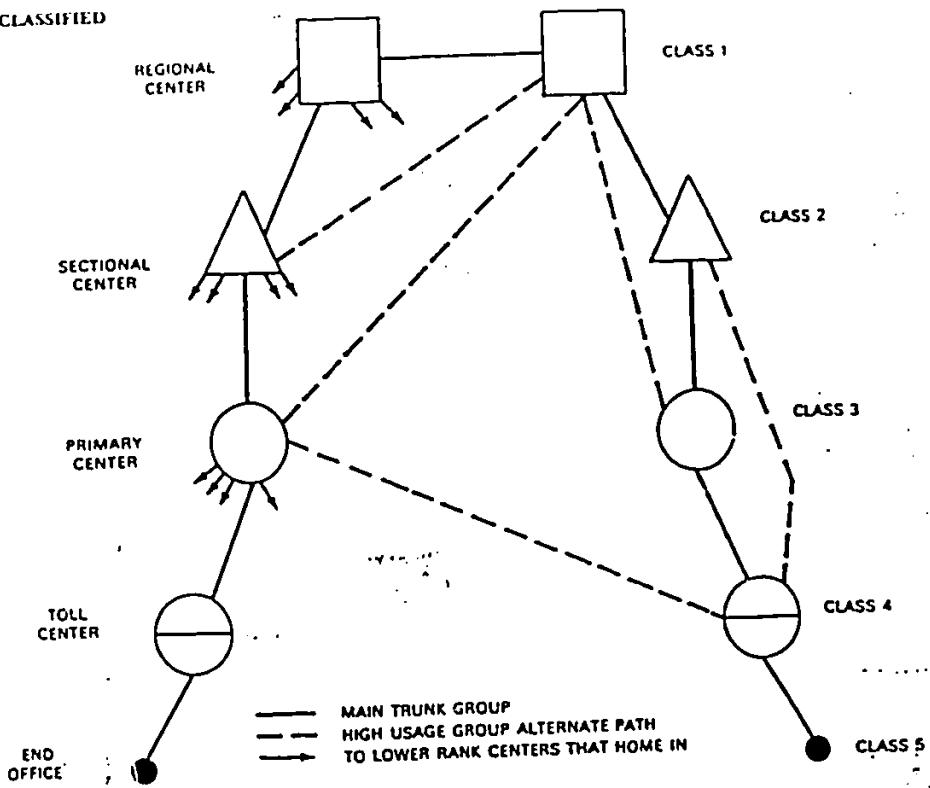


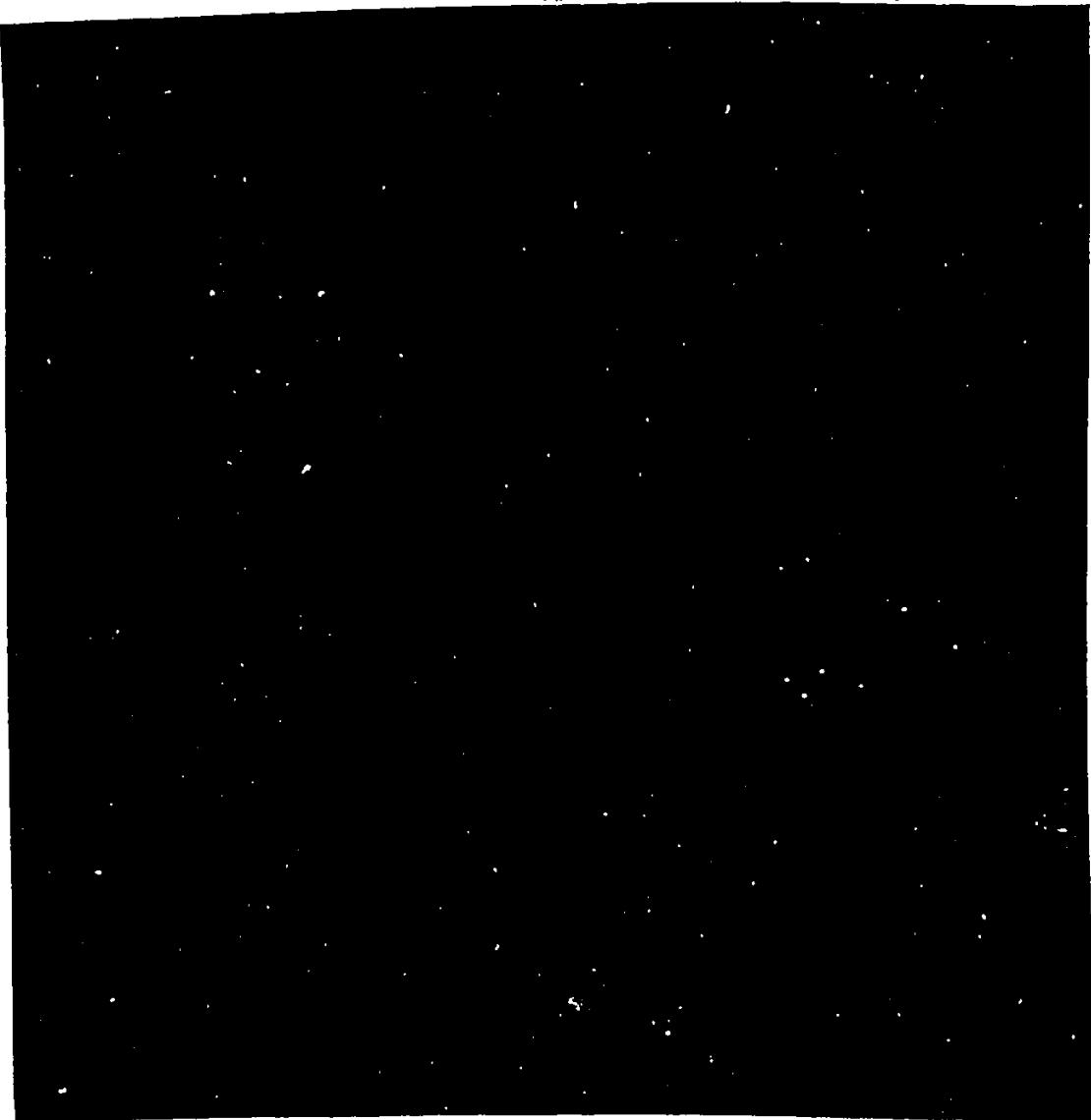
Figure 18. (U) Telephone Switching Plan

3. Local Telephone



(U) Local distribution networks include multiconductor cables and open-wire lines. Open-wire lines are supported on poles. Cables also may be supported on poles, fastened to buildings, or buried.

4. Special Nets - Civil



6. International

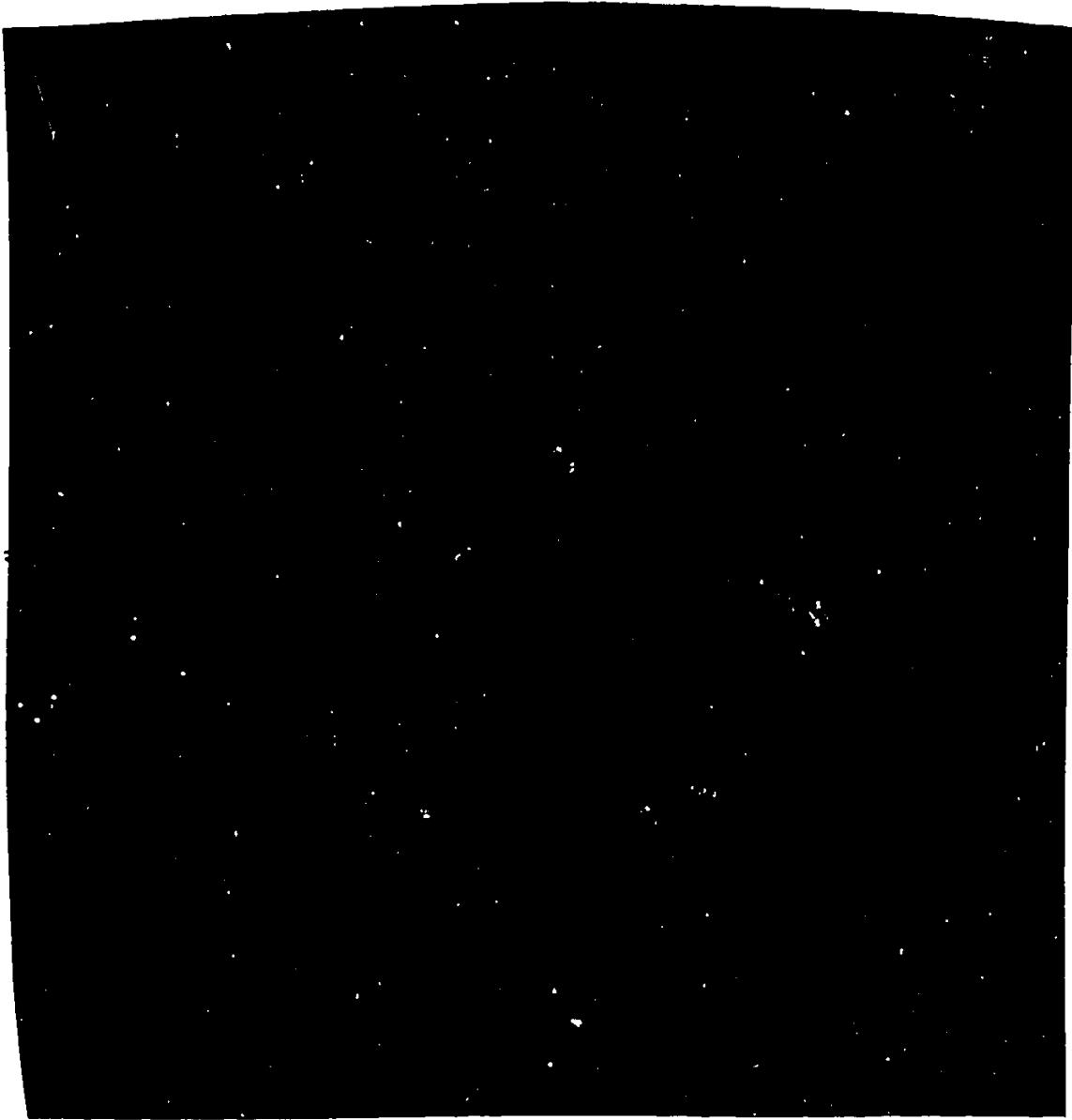
(U) The main switching and control centers for international telecom traffic are in Beijing (figure 22) and Shanghai. Guangzhou, Shenyang, and some of the other border cities serve as access points for international



communications. Services available include the traditional public telegraph and telephone, private telegraph, phototelegraph, facsimile, data communications, television rebroadcast, and transmission of graphical information.

D. Transmission Media

1. Background



(U) One coaxial cable for long-distance telecommunications has been laid that extends from Beijing to Hangzhou via Nanjing and Shanghai. Another under construction between Beijing and Guangzhou has been completed as far as Zhengzhou; it will provide 7,200 wave-carrier telephone channels between Beijing and Wuhan and 3,600 such channels between Wuhan, Changsha, and

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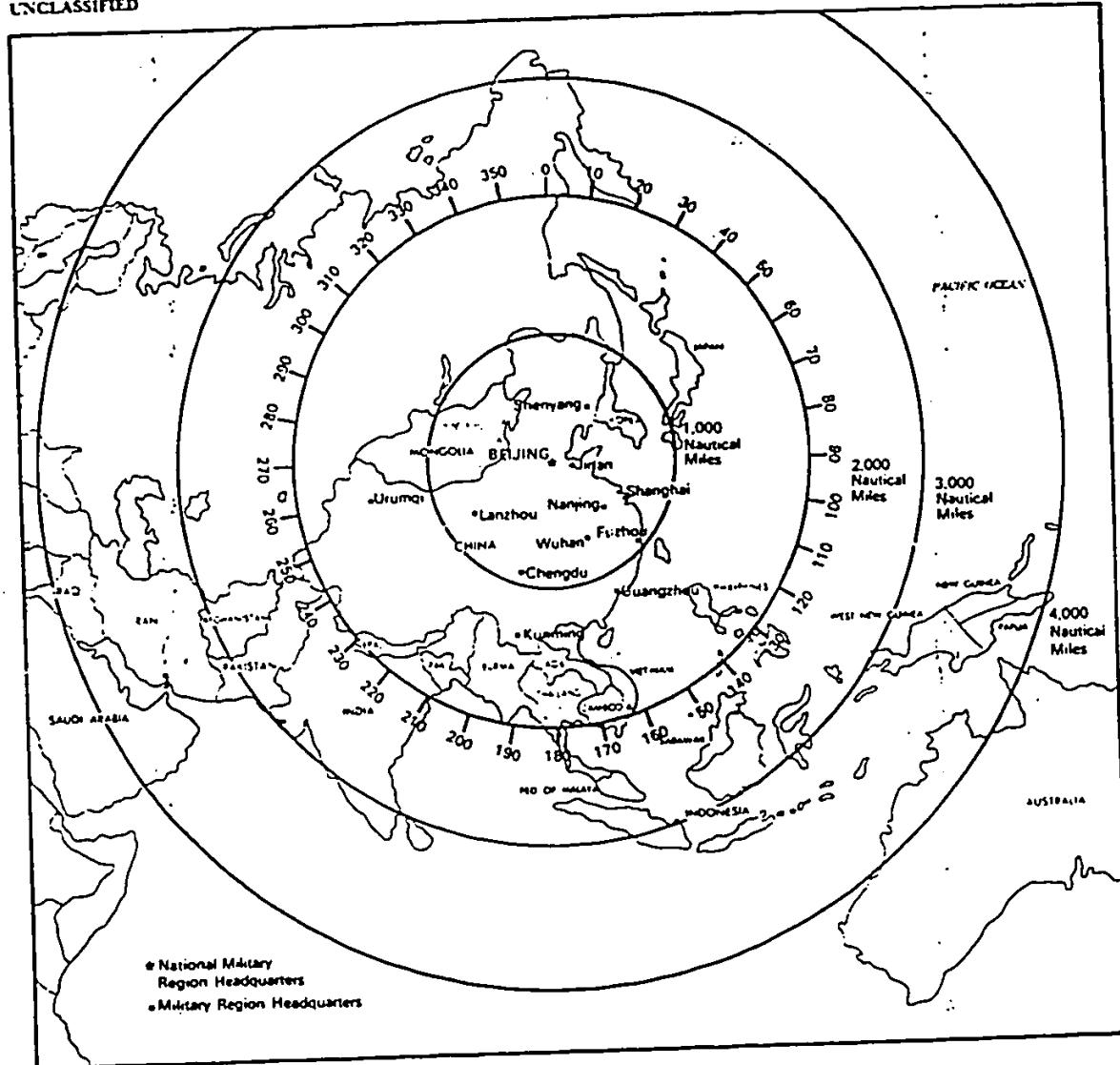


Figure 21. (U) Great Circle Azimuths — Beijing

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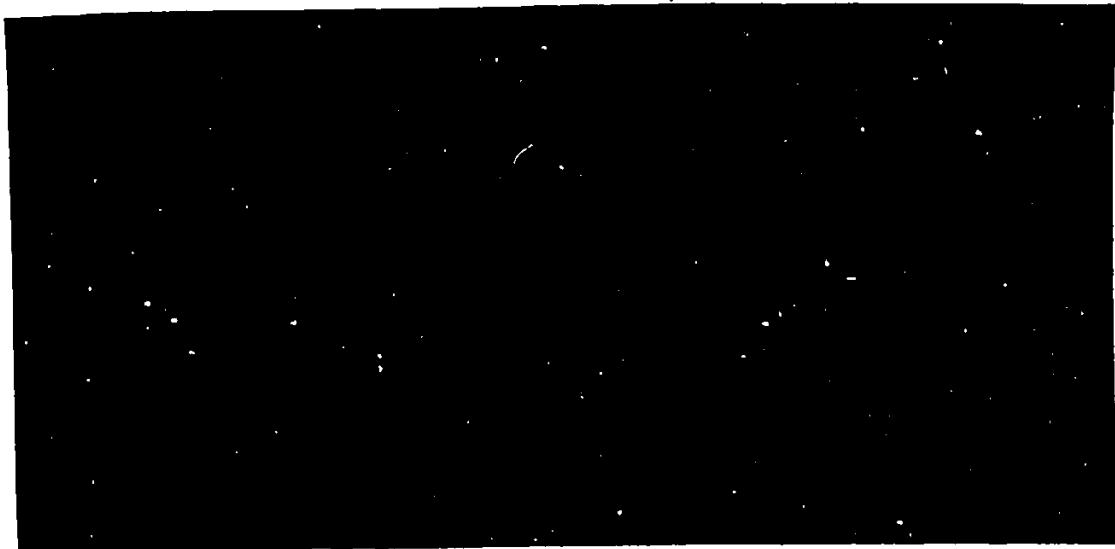
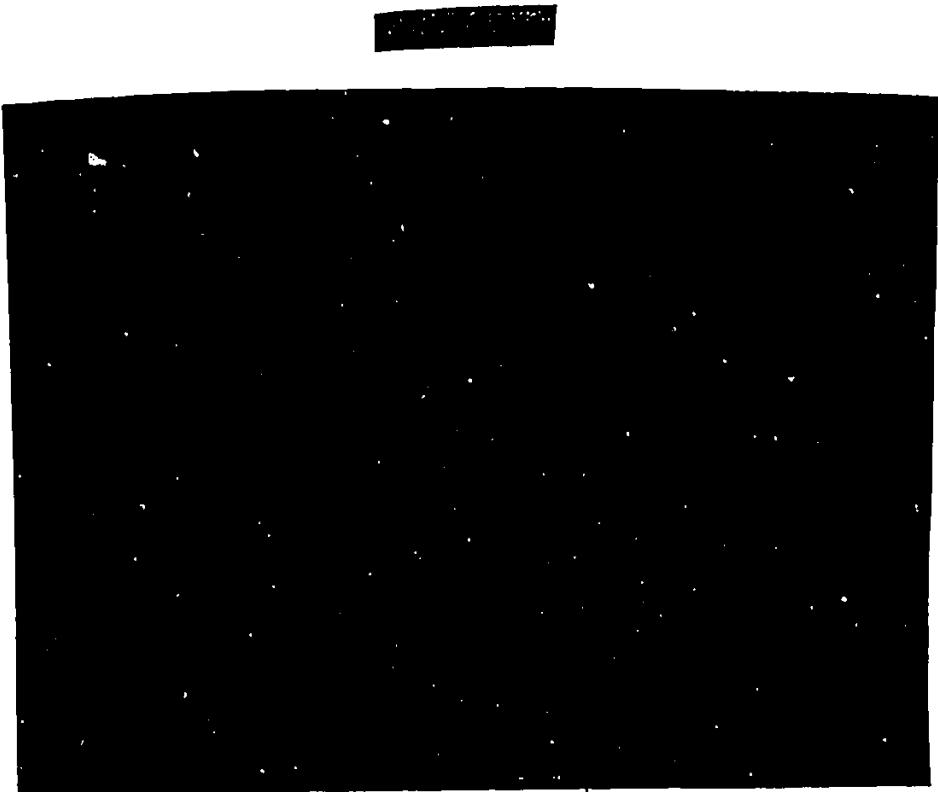


Figure 22. (U) Beijing International Communications Center

Guangzhou. Ongoing construction also includes coaxial cable laying from Chengdu and Chongqing to Shanghai. Eventually, underground and underwater cables will be used to replace open-wire lines.

3. Directional Radio Relay





4. Tropospheric Scatter

(U) On 20 April 1979, the Chinese registered frequencies between 1.9 to 2.2 GHz with the ITU and indicated that the frequencies had been used for

general point-to-point communications since 1 June 1974. Frequency modulated systems at 2 watts were registered.

(U) In 1977, China filed notice with the ITU that geosynchronous satellites for domestic communications were intended to be launched into slots at 70 and 125 degrees east longitude. The Chinese successfully launched an experimental domestic satellite into the 125-degree slot in April 1984.*

6. Extremely-Low-Frequency (ELF)

(U) Use of the ELF portion of the frequency spectrum by China has not been reported.

7. Very-Low and Low-Frequency (VLF/LF) Radio

* (U) For complete details on China's satellite communications, see: DB-1720-84-SAO, China: Satellite Communications - Development and Prospects, March 1984.

8. Medium-Frequency (MF) Radio

(U) The medium-frequency radio range is available for use by some of China's coastal radio stations. There are close to 30 fixed port and coastal radio stations; however, the number of stations using MF is unknown.

9. High-Frequency (HF) Radio



10. International

(U) Four new basic transmission systems have been technically introduced for the international communications links:

<u>System</u>	<u>Link</u>
Submarine cable	Japan
Microwave radio relay	Hong Kong
Buried coaxial cable	Hong Kong
INTELSAT system	Pacific Ocean and Indian Ocean

[REDACTED]

(U) International high-frequency radio is used for direct radiotelephone service, as a backup system for satellite and cable circuits, and for communicating with areas of low traffic volume. In addition, circuits are leased to members of the international business community resident in China.

(U) China can also reach countries with which it does not have a direct satellite or cable connection by using transit switching services available in all advanced countries. Transit service is usually a temporary expedient. The system provides alternative communications routes when outages occur in direct circuits.

11. Television and Sound Broadcast

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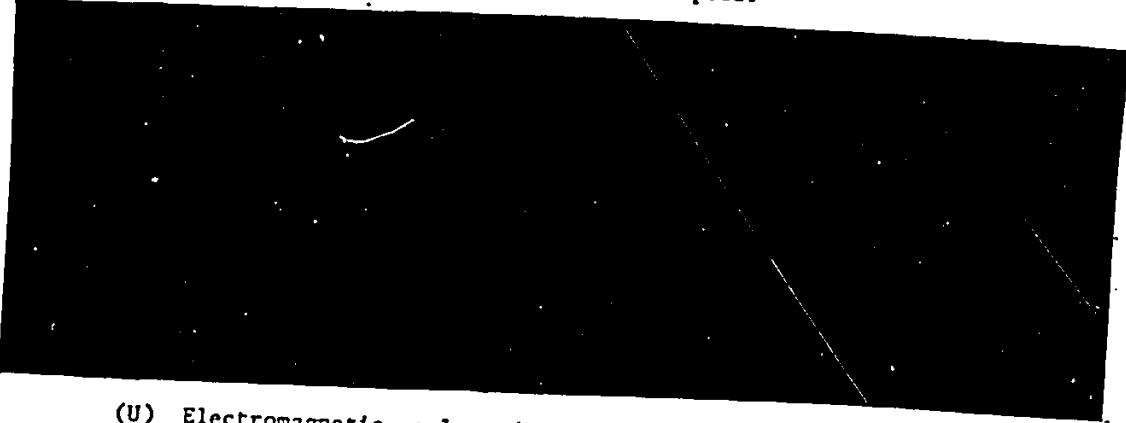
(U) The VHF/UHF television broadcast bands assigned to China consist of 62 channels; System D, 625 line definition is used. Transmissions are both monochrome and color.

CHAPTER 4 - SURVIVABILITY AND OUTLOOK

A. Perspective

1. Frame of Reference

(U) Readiness for natural and manmade emergency conditions is an essential part of national C3 systems planning. Since national C3 survivability is a paramount requirement, considerable emphasis is placed on emergency action C3 needs and methods to offset perceived vulnerabilities. National telephone switch centers and main mass media television and sound broadcast facilities are highly susceptible to seizure, damage, or total destruction. Many fixed strategic communications networks are vulnerable to line tapping, jamming, radio intercept, and operational malfunctions caused by manmade phenomena. Pre-emergency planning routinely incorporates protective measures for key facilities, reinforcement of communications security, and provisions for less vulnerable alternate communications media. Electronic countermeasures are other methods that can be adopted.



(U) Electromagnetic pulse (EMP) is a phenomenon associated with nuclear bomb detonation, particularly high-altitude explosions. The phenomenon can cripple or kill telecommunications and electric power distribution systems within a fraction of a second. EMP wreaks its havoc by inducing current or voltage surges through electronically conducting materials. Technology now exists to EMP-harden any vulnerable communications system. As an example, protection for systems whose continuous operations are critical can be achieved by shielding equipment components in a metal box. Equipment is not vulnerable unless and until it is attached to an antenna; if there is no antenna, there is no problem. Radio antennas can be buried or protected through other hardening methods.

2. The China Profile

(U) The Beijing-based national command authorities of China have not released substantive information on national C3 pre-emergency plans and methods. However, China's C3 evolutionary pattern closely corresponds with the preceding information.

Table 10

Capability and Vulnerability of Transmission Media (U)

<u>Types of Facility</u>	<u>Operating Range (km)</u>	<u>Relative Vulnerability</u>	<u>Relative Resistance To Jamming</u>
Open wire	160 to 1,600	High	High
Cable, submarine	160 to over 1,600	Low	High
Cable, underground coaxial	160 to over 1,600	Medium	High
Cable, underground twisted pair	16 to 1,600	High	High
Cable, voice-frequency pair	0.5 to 16	High	High
Radio, fixed or transportable HF	480 to over 1,600	High	Low
Radio, fixed, VLF	Over 1,600	High	High
Radio-relay, fixed or transportable	Line-of-sight	High	High
Tropospheric scatter, fixed or transportable	16 to 480	High	Medium

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D. Outlook

(U) China is a country with human and natural resources of tremendous potential power, but these assets are unevenly distributed and mostly underdeveloped. Early revolutionary ideals that the country can be transformed into a modern industrial state, militarily powerful, and commanding international respect remain an unswerving aim of China's present holders of ultimate national authority. These authorities possess the historical reputation of methodically getting the job done but they are old and time is not on their side. They have, accordingly, initiated changes required to set the stage for China's future leaders. Under their guidance, the new system of governance is being aligned to be supportive of national policy change over

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time. The near-term priorities also consistently reflect a systematic approach in removing or diluting potential problem areas that could conceivably present obstacles and delay progress. If the senior citizen authorities are given sufficient time, China's future authorities will inherit contemporary institutionalized assets that offer the potential of successfully harnessing the country's vast resources and achieving the ultimate goals conceived in early revolutionary days.



Appendix D

Radio Frequency Bands (U)

<u>Band Number</u>	<u>Frequency Range</u> lower - upper	<u>Symbol</u>	<u>Subdivision*</u>
2	30 - 300 Hz	ELF	Extremely low frequency
3	300 - 3,000 Hz	VF	Voice frequency
4	3 - 30 kHz	VLF	Very-low frequency
5	30 - 300 kHz	LF	Low frequency
6	300 - 3,000 kHz	MF	Medium frequency
7	3 - 30 MHz	HF	High frequency
8	30 - 300 MHz	VHF	Very-high frequency
9	300 - 3,000 MHz	UHF	Ultra-high frequency
10	3 - 30 GHz	SHF	Super-high frequency
11	30 - 300 GHz	EHF	Extremely-high frequency
12	300 - 3,000 GHz	None	None

* (U) The radio spectrum is subdivided into the nine frequency bands above voice frequency. As the unit of frequency is the hertz (Hz), radio frequencies are expressed as follows:

- In kilohertz (kHz), up to and including 3,000 kHz.
- In megahertz (MHz), above 3 MHz, up to and including 3,000 MHz.
- In gigahertz (GHz), above 3 GHz, up to and including 3,000 GHz.

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Appendix E

Evolution of the C³ Term (U)

(U) The phrase "Command, Control, and Communications," sometimes called C³, is open to a variety of interpretations. The expression is not used in China but C³ is used freely and widely in the Western community to describe innumerable functions. Different interpretations arise, in part from the lack of an official definition and the fact that the C³ phrase is relatively new. Its first noted use in the West is attributed to American industry in the early 1960s. At that time, the three discrete elements that had existed for many years—command and control and communications by electromagnetic means (telecommunications)—were wedded by industry for the purpose of identifying new-generation "space age" technology. From this somewhat limited application, C³ grew to include a complex blend of interrelated disciplines associated with national, strategic, and tactical military concepts; studies on how to gain greater precision and quality in predicting the outcome of decisions; and, more recently, studies on the true meaning of C³ and its diverse functions. Because C³ has steadily evolved into a complex blend of scientific techniques, the fact is that scholars and practitioners do not understand as yet the full scope of activity and potentials offered by the new-generation technology that has been created. This leads to the question: What do we mean by command, control, and communications?

(U) Depending upon the situation, the individual terms of the composite C³ form like meaning and are often used synonymously. There are also numerous other variable forms of C³, including the doublet command and control (C²). However the terms are formed or used, the intent is to convey the notion of regulated functions that are inherent in a decision process. In a narrow sense, a decision process may be no more than functions performed by an equipment item: a device designed to calculate and transmit forces, motion, or energy in a predetermined manner. More broadly, the functions may be carried out by means of grouping and combining the discrete command and control elements required to insure a decision process within a single facility. And in the fullest sense, it may also embrace an entire system to include personnel, organization, information, procedures, and the equipment required for precision in making and executing decisions in a coherent manner. From another view, C³ functions cover the organized efforts of a national establishment and its leadership, to include the whole complex of human and organizational elements that can be used to transform resources into instruments of national power.

(U) The evolution of contemporary thoughts on C³ functions is closely allied with events stemming from the post-World War II period. Following the war, the proven techniques used for large-scale interdisciplinary operations and logistic support soon found practical application in the peacetime economy of many countries. Methods from mathematics, economics, and engineering that had been integrated into wartime management offered greater precision in predicting the outcome of a decision in a peacetime environment. In many countries this power was amplified by the computer, which added computational speed to the approach. Effective command and control operations over a

[REDACTED]

distance were provided by the fixed strategic communications carriers of the national telecommunications system.

(U) Inseparable from a country's internal peacetime environment have been the realities of the need for immediate action in the event of emergencies and potential aggression from an external source. Telecommunications from another esoteric science had managed to keep at least one pace ahead of the communications speed and capacity required for anticipated peacetime developments. Systems planning also incorporated provisions for emergency actions, but even the most sophisticated long-haul communications carriers had vagrant characteristics of equipment malfunction and traffic overload without prior warning. In some countries the steady improvements in the material means of waging war led to the realization that communications could conceivably represent an "Achilles' heel" during real-time emergencies. The telecommunications industry that had evolved over a period of some 60 years was largely based on electromechanical gear and vacuum tubes. Space-age electronics technologic breakthrough quickly resolved most of the outstanding communications problems. New-generation technology offered the potential of greater precision and quality. Old principles have been modified, but not discarded completely. There are some countries where C3 functions are still based on techniques that predate the World War II era.